



Overview

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Target Audience

- This training is designed for those who will collect and analyze Patient Safety Component data or enroll a hospital into NHSN

This includes:

- NHSN Facility Administrator
- Patient Safety Primary Contact
- Infection Control Professional (ICP)
- Epidemiologist
- Microbiologist
- Pharmacist
- Data entry staff



Target Audience

- Outpatient dialysis center users should attend the dialysis training session on Dec 5, 2006



Objectives

1. Describe NHSN and its purposes
2. Define the authority and confidentiality protections for NHSN
3. Identify the requirements for participating in the Patient Safety Component
4. Describe the NHSN surveillance methodology
5. List the modules of the Patient Safety Component
6. Explain key terms used in the Patient Safety Component
7. Describe the Monthly Reporting Plan



National Healthcare Safety Network (NHSN)

- NHSN is an internet-based surveillance system that integrates the surveillance systems previously managed separately in the Division of Healthcare Quality Promotion (DHQP) at CDC
 - National Nosocomial Infections Surveillance (NNIS) system
 - Dialysis Surveillance Network (DSN)
 - National Surveillance System for Healthcare Workers (NaSH)



Purposes of NHSN

- Collect data from a sample of US healthcare facilities to permit valid estimation of the
 - magnitude of adverse events among patients and healthcare personnel
 - adherence to practices known to be associated with prevention of healthcare-associated infections (HAI)
- Analyze and report collected data to permit recognition of trends



Purposes of NHSN

- Provide facilities with risk-adjusted data that can be used for inter-facility comparisons and local quality improvement activities
- Assist facilities in developing surveillance and analysis methods that permit timely recognition of patient and healthcare personnel safety problems and prompt intervention with appropriate measures
- Conduct collaborative research studies with members



Authority and Confidentiality for NHSN

- Public Health Service Act (42 USC 242b, 242k, and 242m(d))
 - Confidentiality Protection
 - Sections 304, 306, and 308(d) of the PHS Act
- “The information contained in this surveillance system that would permit identification of any individual or institution is collected with a guarantee that it will be held in strict confidence, will be used only for the purposes stated, and will not be disclosed or released without the consent of the individual, or the institution in accordance with Sections 304, 306, and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)).”



Data Collection and Reporting Requirements for Patient Safety Component

1. Submit a Monthly Reporting Plan to inform CDC which, if any, of the patient safety modules will be used for that month
2. Adhere to the selected module's protocol(s) exactly as described in the *NHSN Manual: Patient Safety Component Protocol*



Data Collection and Reporting Requirements for Patient Safety Component

(continued)

3. Use surveillance methodology as described in the Protocol (detailed in the next section)
4. Report events and appropriate summary or denominator data indicated on the Plan to CDC within 30 days of the end of the month



Data Collection and Reporting Requirements for Patient Safety Component

(continued)

5. Submit data for at least one module for a minimum of 6 months of the calendar year
6. Complete an annual survey for your facility
7. Pass quality control acceptance checks that assess the data for completeness and accuracy





Data Collection and Reporting Requirements for Patient Safety Component

(continued)

8. Agree to report to state health authorities adverse event outbreaks identified in the facility by the surveillance system and about which you are contacted by CDC.

Failure to comply with these
requirements will result in removal
from the NHSN



Staffing Requirements for Participating in the PS Component

- There are no specific FTE requirements, but a trained Infection Control Professional (ICP) or Hospital Epidemiologist should oversee the HAI surveillance program
- Other personnel can be trained to
 - Screen for events (e.g., infections)
 - Collect denominator data
 - Collect infection prevention practices (process measure) data
 - Enter data
 - Analyze data



NHSN Surveillance Methodology

- Active
- Patient-based
- Prospective
- Priority-directed
- Risk-adjusted rates
- Incidence rates



NHSN Surveillance Methodology

ACTIVE vs. PASSIVE

- **ACTIVE** Trained personnel use standard definitions and a variety of data sources to identify events
- **PASSIVE** Personnel, such as staff nurses, not trained to do surveillance report events



NHSN Surveillance Methodology

PATIENT-BASED vs. LABORATORY-BASED

- **PATIENT-BASED** Monitoring patients for events, risk factors, and procedures and practices related to patient care
 - Visit patient care areas
 - Review patient charts
 - Discuss with caregivers
- **LABORATORY-BASED** Case-finding based solely on positive lab findings



NHSN Surveillance Methodology

PROSPECTIVE vs. RETROSPECTIVE

- **PROSPECTIVE** Monitoring patients while still in the institution; includes post-discharge period for SSI
- **RETROSPECTIVE** Case-finding based solely on chart review after patient discharged



NHSN Surveillance Methodology

PRIORITY-DIRECTED vs. COMPREHENSIVE

- **PRIORITY-DIRECTED** Objectives for surveillance are defined and focused on specific events, processes, organisms, and/or patients/populations
- **COMPREHENSIVE** Continuous monitoring of all patients for all events and/or processes



NHSN Surveillance Methodology

RISK-ADJUSTED vs. CRUDE RATES

- **RISK-ADJUSTED** Rates are controlled for variations in the distribution of major risk factor(s) associated with an event's occurrence
 - Comparison of rates is useful
- **CRUDE** Rates assume equal distribution of risk factors for all events
 - Comparison of rates not recommended



NHSN Surveillance Methodology



INCIDENCE RATES vs. PREVALENCE RATES

■ **INCIDENCE (I)**

New events in a population occurring during some defined time period

$$I = \frac{\text{new events}}{\text{population during time period}}$$

■ **PREVALENCE (P)**

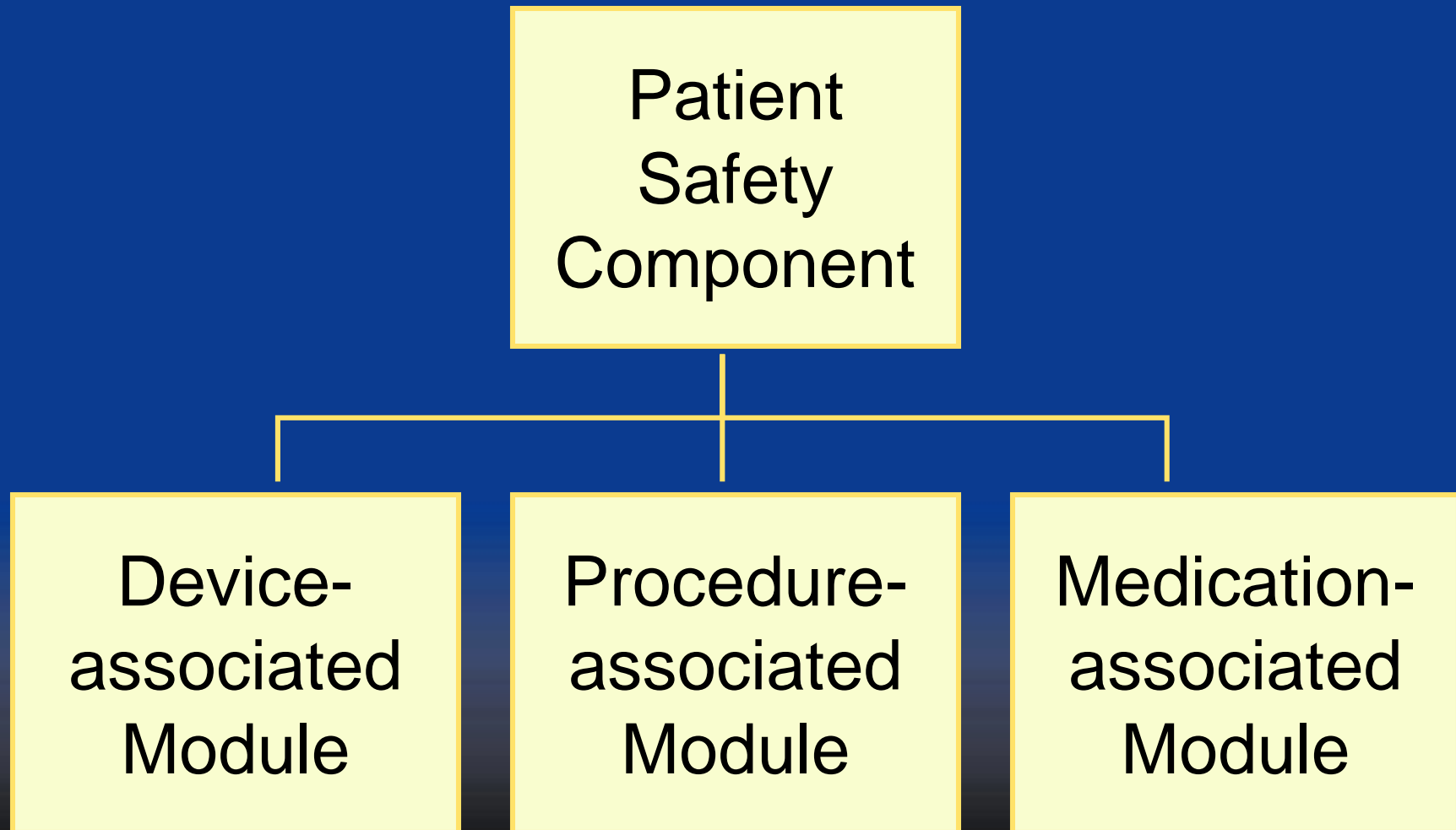
All events in a population occurring at either a point in time (P_{point}) or during some defined time period (P_{period}).

$$(P_{\text{point}}) = \frac{\text{new and existing events}}{\text{population at a point in time}}$$

$$(P_{\text{period}}) = \frac{\text{new and existing events}}{\text{population during time period}}$$

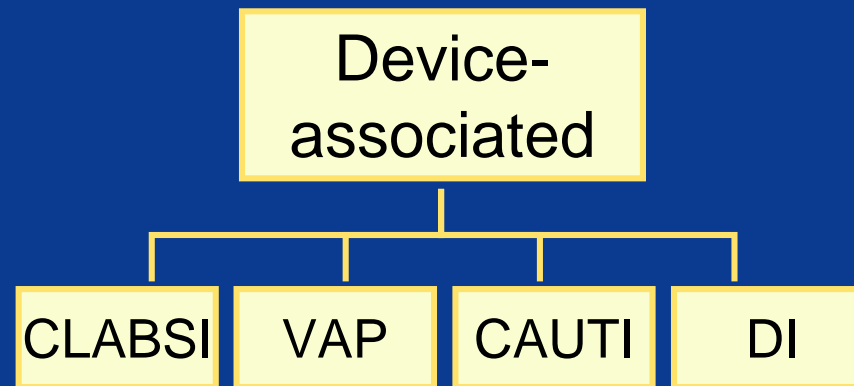


Patient Safety Component Modules





Patient Safety Component Modules



CLABSI Central line-associated
bloodstream infection

VAP Ventilator-associated pneumonia

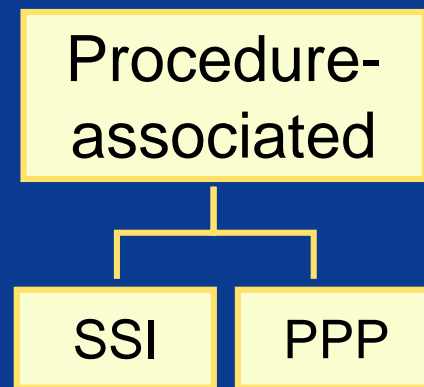
CAUTI Catheter-associated urinary tract
infection

DI Dialysis incident*

*Training on Dec 5, 2006



Patient Safety Component Modules



SSI

Surgical site infection*

PPP

Post-procedure pneumonia*

*Training on Nov 16, 2006



Patient Safety Component Modules

Medication-
associated

AUR

AUR Antimicrobial use and resistance option

*Training on Nov 16, 2006



Patient Safety Component Key Terms

- HAI
- NHSN Location
 - 80% Rule
- Attribution of HAI
 - Facility-level
 - Location-level for device-associated HAI
 - Procedure-level for procedure-associated HAI

NHSN Key Terms can be found in the *NHSN Manual: Patient Safety Component Protocol*



Healthcare-associated Infection (HAI)

- A localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s) that
 - Occurs in a patient in a healthcare setting and
 - Was not present or incubating at the time of admission, unless the infection was related to a previous admission
- When the setting is a hospital, meets the criteria for a specific infection (body) site as defined by CDC
- When the setting is a hospital, may also be called a nosocomial infection



NHSN Location

- In the Patient Safety Component, it is the patient care area where a patient was assigned
 - when exposed to the agent that led to the development of the event or
 - when patient care practice under surveillance was performed
- Location is used to stratify device-associated infection rates
- A location may treat patients for more than one clinical service



NHSN Location

80% Rule

- The specific NHSN Location is determined by the type of patients receiving care
- 80% of the patients must be of a consistent type to classify the location as that specific type

EXAMPLE

If 80% of patients on a ward are pediatric patients with orthopedic problems, the location is designated as an Inpatient Pediatric Orthopedic Ward

EXCEPTION

For patient care areas where the mix of medical and surgical patients is approximately equal, use the combined medical/surgical location designation



NHSN Location

- A list of standard CDC Locations can be found in the *NHSN Manual: Patient Safety Component Protocol*
- Each monitored facility location is “mapped” to one standard CDC Location
- For instructions on setting up locations in NHSN, attend the training “Facility Start Up”, on Dec 7, 2006



Attribution of HAI

- Once an HAI is identified, the next step is to determine the level of attribution
- The three levels of attribution are:
 - Facility-Level
 - Location-Level
 - Procedure-Level



Attribution of HAI: Facility-Level

- When a patient is admitted to a facility with an HAI, determine whether or not to attribute the HAI to this facility.

EXAMPLES

Patient is discharged from Hospital A and returns 15 hours later to Hospital A with an HAI. This is an HAI for Hospital A

Patient is admitted to Hospital B with an infection which was determined to be attributed to Hospital A. This is an HAI for Hospital A, not Hospital B



Attribution of Procedure-associated HAI: Location-Level

- If the device-associated HAI develops in a patient within 48 hours of transfer from one patient-care area to another in the same facility, the transferring patient care area is the location of attribution

EXAMPLE

Patient with a central line is discharged from the surgical ICU to an orthopedic ward and develops a blood stream infection within 24 hours. This CLA-BSI is attributed to the surgical ICU



Attribution of Procedure-associated HAI

Procedure-associated HAIs
are attributed to the procedure
NOT the location



Monthly Reporting Plan

- The Monthly Reporting Plan informs CDC which modules a facility is following during a given month
- A facility must enter a Plan for every month of the year, even those in which no modules are followed
- A facility may enter data only for months in which Plans are on file



Monthly Reporting Plan Options

Choose either:

- Enter a Plan that conforms to one or more of the modules of the Patient Safety Component

or

- Enter a “No Patient Safety Modules Followed” option

Example Plan that conforms to modules of the Patient Safety Component

Device-Associated Module

Locations	CLA	BSI	DI	VAP	CAUTI
2 EAST - HEM/ONC	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SICU - SURGICAL ICU	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NICU3 - LEVEL 3 NICU	<input checked="" type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
OUTDIAL - OUTPATIENT DIALYSIS	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Procedure-Associated Module

Procedures	SSI	Post-procedure PNEU
CRAN - Craniotomy	IN - Inpatient	IN - Inpatient
CHOL - Gallbladder surgery	BOTH - In and outpatient	
HPRO - Hip prosthesis	IN - Inpatient	



Example Plan that conforms to the “No Patient Safety Modules Followed” option

Mandatory fields marked with *

Facility ID*: DHQP Memorial Hospital (ID 10000)

Month*: September

Year*: 2005

☒ No NHSN Patient Safety Modules Followed this Month

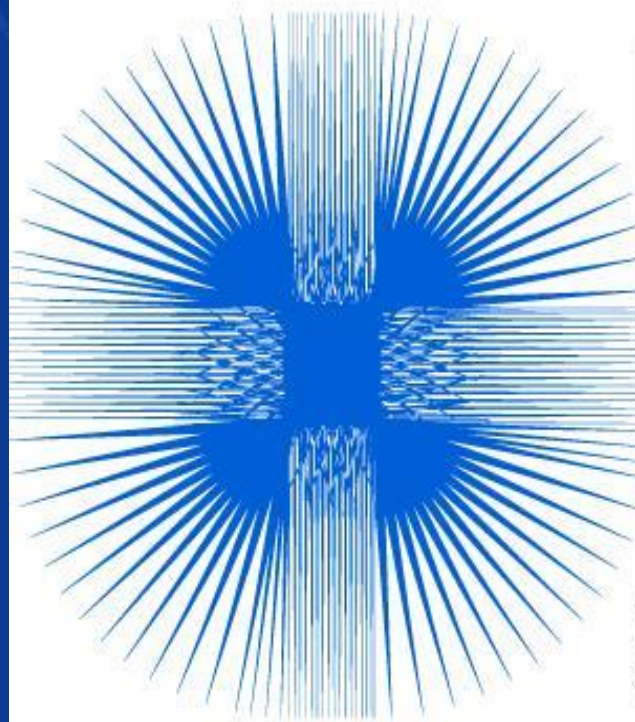
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References

- For more information about these topics, refer to the NHSN website
 - *NHSN Manual: Patient Safety Component Protocol* located at
http://www.cdc.gov/ncidod/dhqp/nhsn_members.html
 - Tables of instruction for completing all forms
 - Key terms
 - CDC location codes
 - Operative procedure codes
 - Purposes, data collection requirements and assurance of confidentiality
 - NHSN data collection forms



NHSN

National Healthcare
Safety Network

http://www.cdc.gov/ncidod/dhqp/nhsn_members.html